

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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COUNTRY	Yugoslavia	REPORT	
SUBJECT	Research on Motor Vehicle Engines for Military Application	DATE DISTR.	15 NOV 1962
		NO. PAGES	1
		REFERENCES	RD

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DATE OF INFO.

PLACE & DATE ACQ.

THIS IS UNEVALUATED INFORMATION.

1. In April 1962 it was reported that Yugoslav technicians of the Research Office of the Ministry of Defense have developed an electronic ignition device that is easily installed in a standard motor vehicle without affecting the normal ignition system. The device is allegedly miniaturized and utilizes "trinistors", which are also reportedly manufactured in Yugoslavia. The device has been mounted on a jeep-type vehicle. Advantages claimed are that it functions successfully regardless of humidity, pressure, ventilation, etc.
2. In June 1962, it was reported that another improvement in motor vehicle engines had been developed by Yugoslav technicians. This concerns the improvement and intensification of combustion, and involves the introduction of a radioactive isotope into the combustion chamber of the motor. The best results were allegedly achieved with Sr90 and Re188.
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STATE	X	ARMY	X	NAVY	X	AIR	X	NSA	X	OCR	X	DIA	X	-AID-	
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SUBJECT: Improvements in Combustion Engines for Military Applications

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1. The improvement [redacted] referred to the application of an electronic ignition device to an engine in a motor vehicle. This improvement, for internal combustion engines or gas turbine engines, involves the improvement and intensification of combustion.

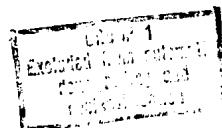
2. These improvements are based on the introduction into the combustion chamber of the motor of a radioactive isotope capable of intensifying, with its penetrating radiation, the combustion of gas at a very low temperature.

3. For this purpose various isotopes may be utilized, but considerations of safety limit the employment of isotopes characterized by strong gamma radiations; the use of these types would in fact necessitate a shielding that would be excessively heavy. It appears that the best results have been achieved with Sr90 and Re188.

4. The utilization of these isotopes permits the "burning" of inferior fuels and, therefore, starting and efficiency is satisfactorily obtained even at very low temperatures.

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SUBJECT: Electronic Ignition for Military Motor Vehicles

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1. The idea of electronic ignition for power motors in special motor vehicles, in particular military ones, is not new. The advantages are multiple: aside from the major advantage (lower consumption of fuel) there is a safety in the functioning of the ignition equipment in whatever local conditions may exist, and regardless of humidity, pressure, ventilation, etc.

2. In the US various experiments, especially for military purposes, have already taken place; these involve, insofar as is known, complex and expensive instruments.

3. Yugoslav technicians of the Research and Projects Office of the Ministry of Defences have developed a similar device, but very simple and sturdy which can be installed in a very short time on any type of power motor, without changing the standard ignition. The device consists of the following:

a. A synchronizing generator, made up of a magneto rotating by means of four small coils (or six, depending on the number of cylinders); the pulses received are obviously in accord with those of the motor.

b. A group of four (or six) "trinisters" which open, at the precise moment, the primary circuit of the coils; the discharge, inducted in the secondary circuit is carried directly to the four (or six) spark plugs.

4. The "trinisters" mentioned above are special semiconductors which in a certain sense have similar and comparable functions to those of the thyatron; they are true interruptors, controlled by an impulse of low power and capable of interrupting at a high speed strong intensity of current.

5. The device described above is being mounted on a jeep-type vehicle. Aside from the increase in efficiency in 10%/.12% (sic), a sure functioning of the ignition circuit even under conditions of humidity which would make the operation of a standard system absolutely impossible has been achieved.

Comment. Although the idea of the electronic ignition of combustion motors is not new, the Yugoslav project is interesting because of its simplicity and functionability. The "Columbus's egg" is evidently in the use of the trinistor. From information received, it appears that these semiconductors are made expressly in Yugoslavia with characteristics more adapted to special utilization. (functioning on 6 or 12 Volts, etc.)

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